

# Our Mississippi

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AMERICA'S RIVER GREAT

SUMMER '13



## New trails forge connections to the 'wild & beautiful'

**THE MYSTERY** of the meandering Mississippi lured John Ruskey into building a raft at age 18 and setting off on a five-month river journey with his best pal.

The wild and watery landscape stayed in his soul and eventually called the Colorado boy to its shores. But it was the many questions he got while curating the Delta Blues Museum that helped him see that the river's mystery was also its potential downfall.

People came from around the world to experience the Mississippi as they had the Grand Canyon, Minnesota's Boundary Waters and America's other natural wonders, he said. But there were few ways he could help them access it beyond the shoreline.

"I kind of metaphorically came to believe the river was this living spirit of great beauty, and beauty not seen is beauty that's lost," Ruskey said. "Speaking more realistically, if we don't have paddlers on the river, it's not going to be taken

care of to the same degree. We're going to lose what's wild and beautiful about the river—its big islands, its back channels, its uncluttered banks, its incredible wildlife, its starry nights."

ABOVE: *A couple explores the wild beauty of the Lower Mississippi.*

As an offshoot to his outfitter and educational company—Quapaw Canoe Co.—Ruskey is midway through the creation of a website dedicated to the new Lower Mississippi River Trail. Through his site, [rivergator.org](http://rivergator.org), Ruskey is creating a detailed guide for advanced and intermediate paddlers alike.

One river stretch at a time and with a camera and GPS functions, he's chronicling spots where boils and small whirlpools form, where you can find an island campsite, even when to catch the best blues festival. The goal is an in-depth chronicle of the 1,100-mile trail of free-flowing water between St. Louis and the Gulf of Mexico, one that can help any skilled paddler navigate safely.


And that is just one of many national-scale efforts to develop or call attention to land and water trails on or around the Mississippi and its tributaries as a way to connect people to nature, promote healthier lifestyles and preserve the watershed's iconic beauty.

### A river of trails

Earlier this summer, an on-water ribbon cutting ceremony conducted via Voyageur canoe marked a one-year celebration of the official designation of the Mississippi River Water Trail—one of the first five designated as part of a new national water trail sys-

*Continued on page 2 >>*



 **Our Mississippi** is a quarterly newsletter of the U.S. Army Corps of Engineers about its work in the Mississippi River Basin. It is published in cooperation with other state and federal agencies and other river interests with whom the Corps collaborates and partners toward long-term sustainability of the economic uses and ecological integrity of the river system.





ABOVE: *Photos from the archives of the Quapaw Canoe Co., which leads trips on the main channel and backwaters of the Lower Mississippi River.*

Also this year, the Cache River, a tributary of the scenic White River, was named one of only three watersheds to be part of a pilot program through President Obama's America's Great Outdoors program. The pilot's goal is to address land conservation, water conservation and public access by converting a once-channelized portion of the Cache back to its original meandering run to attract more recreational interest and involvement.

"With the U.S. Army Corps of Engineers' recent National Water Trails designations, including the Great River Water Trail on the Mississippi River, we are not only connecting people to the outdoors and supporting conservation efforts on our rivers, but we are also supporting tourism and the recreation economy in nearby communities," said Pep Persio, the Corps' Headquarters recreation program business line manager.

While official trail designations are very important, says Kim Rea, recreation manager at the Corps' Rivers Project Office in West Alton, Mo., and the river trail's pioneer—that doesn't mean tourists appear overnight.

"It's a slow process, in part because of the innate fear a lot of people have about big rivers," Rea said. "But we've had a lot of inquiries and a lot of people using it for short trips, and the local paddlers are very excited they have designated spots to camp and can plan trips around those places."

tem. The 121-mile (and expanding) trail stretches from Saverton, Mo., southward through various river stretches and scenic bluffs to the iconic St. Louis riverfront. Paddlers will find more than 20 primitive campsites maintained by volunteers, 62 day use areas, interpretive panels and other helpful information.

**"It doesn't matter how many press releases I send out; nothing compares to getting on the river ...."** —JOHN RUSKEY

In the other extreme, she said, more paddlers from around the world are showing up as they seek to paddle the river's entire length as a "bucket list" travel adventure.

Ruskey's ever-expanding river trail guide development is as much about safety as economic development, conservation and recreation. What he found, he said, was there was no place for boaters to find good information on the Lower Mississippi, let alone a guidebook for navigating it.

"To become a towboat pilot, it's a four-year pilot apprenticeship—about what it was in [Mark] Twain's day when he learned to be a steamboat pilot," Ruskey said. "That's just how complicated and challenging the Lower Mississippi is with its radically fluctuating water levels. You've got to learn to read the river to safely navigate, learn the grammar of the river—what the riffles mean, what the waves mean, what crashing waves mean, the snags and sawyers and all the different qualities to the water."

By November, the guide will include three new stretches to be publicized with paddle outings for writers, photographers, bloggers—a public relations plan for the Mississippi, if you will.

"It doesn't matter how many press releases I send out; nothing compares to getting on the river, feeling it, seeing a sunrise and just the feeling you get. Being on some of the biggest waters in the world opens your imagination and rewards you again and again with amazing examples of nature's productivity and beauty and expansiveness. The Mississippi, not surprisingly, inspires soulful kinds of moments in people, much in the same way as a look at the Grand Canyon. You realize how big a natural landscape you're experiencing and how small you are; yet, at the end of the day, you realize you have a place in it." —K.S.

**GET THE GUIDE:** [rivergator.org](http://rivergator.org)

## Land trails help access the outdoors

The Mississippi River as a centerpiece for recreation isn't a new concept. It was 75 years ago that President Franklin D. Roosevelt established the 3,000-mile Great River Road, running through 10 states and often dubbed the prettiest drive in America. New initiatives seek to get the traveler even closer to their landscape than via cars. The U.S. Department of the Interior named three new land-based trails within the Corps' Mississippi Valley Division as 2013 National Recreation Trails, joining an existing network of more than 1,200. Those include Sugar Bottom Mountain Biking Trail System, a 13-mile one-way loop system at Coralville Lake in Iowa City; Volksweg Trail at Lake Red Rock in Knoxville, Iowa, a trail connecting Pella, Iowa, to Lake Red Rock and boasting striking lake views; and General Dacey Trail, a four-mile multi-purpose trail at Lake Shelbyville in Illinois, known partly for its wildlife viewing.



## Partnerships keep recreation areas open—and thriving

If the U.S. Army Corps of Engineers has seemed more efficient than usual in cleaning up flood debris or sprucing up aging buildings, don't chalk it up to an infusion of cash or burst of ranger energy.

In some recreation areas along the Mississippi River at least, credit goes to Rusty Graham and his nine-member volunteer crew from the AmeriCorps National Civilian Community Corps program. The team, ranging in age from 18 to 24, spent two months clearing flood-related debris, replacing rotting lumber, pulling invasive plants and more at recreation areas within the Rock Island District. It's just one example of ways the Corps is turning to creative partnerships nationwide and along the Mississippi River to keep recreation programs open and accessible despite the need for budget trimming.

"Recreation budgets have gone down, and we are



ABOVE: *AmeriCorps volunteers re-roof and re-shingle buildings and do other maintenance work in these Mississippi River recreation areas.*

having to seek out more innovative ways to keep our parks open, keep them safe and keep the environment healthy," said Heather Burke, The Corps' National Partnership Program Manager. "I like to look at the silver lining. It's forcing us to do things smarter, in ways we probably should have been doing all along."

In the Mississippi River Project around the Quad Cities, AmeriCorps volunteers worked through heat and high water on buildings in popular campgrounds like the 131-site Thomson Causeway, a heavily wooded park on a particularly scenic river island.

"This year's work saved the government roughly \$80,000," said John Knoble, the Mississippi River Project Office's Supervisory Park Ranger.

The Corps was successful in landing the sought-after team, in part, since its many campgrounds provide a ready-made place for crews to stay, and they had a back-up plan for the crew to work with Ed Britton and the U.S. Fish and Wildlife Service in Thomson, Ill., if areas were completely flooded. When several recreation areas ended up inundated with floodwaters, local organizations like the Montpelier, Iowa, fire station lent space to camp out and donated food to the group. Ironically, the crews' favorite job, Knoble says, turned out to be flood debris cleanup. "They really like to see the results when they're done," he said. "I guess we are all that way."

Combining resources with other federal agencies and non-profits has been another budgeting solution. Staff at Iowa's Coralville Lake recreation project on the Iowa River has teamed up with the nearby Herbert Hoover National Historic Site, run by the National Park Service. Corps volunteers spend time at the former president's childhood home; in return, park service employees lead Corps campground programs on everything from the night sky to Hoover's disadvantaged childhood. —K.S.

## Paddling toward a brighter future



*Jerry (Lil' Jer) Hayes*

**AT 21, JERRY (LIL' JER) HAYES** has probably spent more time on the Mighty Mississippi over the past four years than most anyone, save barge captains and commercial fishermen.

As a Mighty Quapaw for four years in the running, he has led paddle trips—for groups of students one day, passengers from the Mississippi River Queen the next and birders

or photojournalists the next. Once, he helped paddle German filmmakers on a month-long journey from St. Louis to New Orleans in two canoes and a hand-crafted river raft. Along the way, he watched sunsets he didn't know could be so pretty, saw new towns and cities and discovered more than a few baby turtles, bunnies and fawns.

The irony, he says, is that he didn't even know how to swim when he applied at age 16.

"It really did change my life, especially that one trip," he said. "I couldn't believe I did a whole month on the river. I just could not believe it. I thought I couldn't do it."

Instilling confidence in young people without a lot of opportunity is a main goal of the Quapaw Canoe Company's apprenticeship program, launched by paddler/writer/educator/artist and environmentalist John Ruskey. He crafts youth into custom canoe builders and river guides, one board or paddle stroke at a time—an idea he credits to the blues.

"When I first got back to Clarksdale [Miss.] in 1991 to curate the Delta Blues Museum, I wanted to learn to play," he said. "I apprenticed with master blues musician Johnny Billington, who took me under his wing, and for two years I studied with him. I was impressed by his dedication to youth and his philosophy: 'If you have something you know is worthy of sharing, you'd better share it; or when you go, it'll die with you.'"

Billington would teach neighborhood kids, too, breaking the blues down into basic building blocks. Then through long-term apprenticeships, he'd put the pieces all together.

"He was the model for what I did," Ruskey said. "I took canoeing practice and safety and did like Mr. Johnnie and broke it down to its basic aspects and introduced it to kids as discrete, unique and very teachable skills. Not only that, but I paid them to exercise those skills when we had clients."

Advanced Quapaws can paddle their way out of eddies, deal with fish that leap into a boat, discuss the history of the actual Quapaw Tribe and company namesake, identify bird sounds and get 14 paddlers keeping a canoe headed in the right direction.

"When I had to do an overnight trip, John showed me how to paddle," Hayes said. "He did some swimming lessons and some canoe rescue. And when I got to like it, I didn't want to leave."

Ninety-five percent of apprentices come from impoverished homes in Clarksdale, a community with a high drop-out rate and few opportunities for youth. With the help of the river's lure, Ruskey says he can successfully compete with a thriving illegal economy and help steer kids out of life's difficult eddies.

"The neat thing is, the Mississippi River is their landscape," Ruskey said. "Here, they can become involved in the landscape as a way of finding a gratifying, productive and rewarding life. And for some of them, it's the one place they can go to get a good night's sleep."

"One apprentice was asked on a winter trip, 'Why is it that you do this? It's dirty and cold?' He said, 'I just had to get out of town.' It could have been the same thing Huck Finn told someone who might ask him, 'Why is it you are on the river Huck?' ... 'I just had to get out of town.' And for us Mighty Quapaws, that's a good enough reason!" —K.S.

### SHARE YOUR THOUGHTS ON LOWER RIVER HABITAT NEEDS

The U.S. Army Corps of Engineers and partner organizations will host three public meetings this summer on habitat and recreation needs along the Lower Mississippi River.

The meetings are associated with the Lower Mississippi River Resource Assessment, the first comprehensive natural resources study of the region in 40 years. When completed, the study will be forwarded to Congress, along with recommendations for projects to improve river habitats as well as opportunities for fishing, paddling and other recreation from Cairo, Ill., to the Gulf of Mexico. The study partners are seeking public input during the upcoming meetings. All the public meetings will be from 4-7 p.m. on:

- *July 30, Lannom Center, 2000 Commerce Avenue, Dyersburg, Tenn.*
- *Aug. 1, Phillips County Chamber of Commerce, 111 Hickory Hills Drive, Helena, Ark.*
- *Aug. 7, Hemingbough Center, 10101 Highway 965, St. Francisville, La.*

Partners working with the Corps on the river assessment include The Nature Conservancy, the Lower Mississippi River Conservation Committee, Mississippi River Corridor Tennessee, the National Audubon Society, Delta Wildlife, Wildlife Mississippi and Quapaw Canoe Co. For more information on the public meetings or assessment, contact Marsha Raus, Memphis District Corps of Engineers, at 901-544-3455.

# Sharing river lessons— a world away

**Two great floods** happened in 2011 on two of the world's greatest rivers, with two very different outcomes for the people who live and work along them.

In the Mississippi River Valley, the worst flood in history passed with no loss of life and relatively little damage, even though it threatened to destroy 1.5 million homes, \$230 billion in crops and infrastructure and many lives.

At about the same time, a flood prompted by a monsoon was striking the equally powerful Mekong, a river that travels 2,700 miles from the glaciers of Tibet through forests, jungles and hills in China, Cambodia, Laos and Thailand, to the rice-rich delta in Vietnam. That disaster, in contrast, killed more than 800 people, damaged 900,000 homes, ruined valuable rice paddies and impacted the lives of 8 million people. A large percentage of those killed were children who died from drowning.

"In emergency situations, children, particularly young children, are the most vulnerable," explained Vietnamese child protection expert Nguyen Van Nghia in a United Nations Children's Fund report. "Many live in houses surrounded by water, and if their parents fail to keep an eye on them for just a second, they might fall into the rushing flood waters ... and they can quickly be carried far away."

The disparity between outcomes provided additional momentum for an unprecedented May exchange between the Mekong River Commission and the Mississippi River Commission.

A delegation of more than a dozen people from the United States—a group that included several members of the Mississippi River Commission, a general, scientists and academics—traveled to Laos, Cambodia, Thailand and Vietnam from May 10-23 to offer technical advice based on knowledge gained from scientific research and experience.

"Anytime we can share information and technical know-how to prevent destructive flooding and loss of life, we have an obligation as fellow human beings to do everything we can to help," said Chuck Shadie, water control chief for the Mississippi Valley Division and a member of the traveling delegation.

The United States Agency for International Development funded the trip as part of a \$1 million pledge of support by former Secretary of State Hillary Clinton. That pledge also led to a formal memorandum of understanding between the two river commissions.

In addition to floods, the two river commissions face other commonalities in managing two of the world's largest rivers and watersheds. The Mississippi and Mekong deltas face the world's highest rate of change from sea level rise, making them obvious partners in addressing vulnerabilities facing coastlines. The Mississippi River Basin faces extensive land loss in the Louisiana delta, and the Mekong has suffered steady saltwater intrusion into the essential rice crops of Vietnam.

The partnership has potential to advance the work of existing programs like The Nature Conservancy's National Great Rivers Partnership and work of the National Great Rivers Research and Education Center, and to increase information-sharing on topics like fisheries, river infrastructure and sediment, said Maj. Gen. John Peabody, president of the Mississippi River Commission, commander of the Corps' Mississippi Valley Division and a delegation member.



ABOVE: *A flooded village along the Mekong. The 2011 flood damaged some 900,000 homes and impacted 8 million people.*

"We learned that our challenges on U.S. river basins are in some ways different, but in many respects similar to those faced in the Mekong River Basin," he wrote in a letter to the group's Mekong basin hosts. "We return to the Mississippi Basin with fresh perspectives and great appreciation for the people of the Mekong Basin and the challenges they face with water resources management, leadership and decisions."

During the meetings, the two commissions agreed to focus on specific initiatives that include public engagement models (like that used by the Mississippi River Commission) and modeling tools used along the Mississippi River to help with "risk-informed" decision making.

Maj. Gen. Peabody invited Mekong member country authorities to join the Mississippi River Commission on its annual "low water inspection trip" in August, to observe how the commission engages the public and balances competing interests and concerns. This is a major concern along the Mekong since it flows through many countries with different interests.

In addition to flooding issues, navigation was a key topic of discussion during the exchange. For example, 11 dams are in the planning stages along the Mekong. The governments are motivated to develop the enormous hydropower potential where higher river gradients make the dams economical. However, development on the Mekong's main stem could dramatically alter the ecosystem and may have major undesirable consequences downstream in Cambodia and Vietnam, especially related to fisheries and sediment transport.

To better understand the hydropower issues in Laos, the Mississippi River delegation traveled to the Nam Ngum Dam to tour the facility. Maj. Gen. Peabody also discussed his extensive experience with dams and dam safety and shared his concerns about America's aging infrastructure since many United States dams are beyond their 50-year design life.

The American embassies in both Cambodia and Vietnam have expressed concern with the need for the Mekong to be developed in a sustainable fashion, and they desire long-term Mississippi River Commission engagement to assist with sustainable solutions.

"Our goal is to provide the U.S. State Department, U.S. Agency for International Development and the Mekong River Commission's member countries the technical advice that we are funded to deliver," said Stephen Gambrell, executive director of the Mississippi River Commission, "and also the relationship contacts that will help them solve some very difficult engineering problems." —R.A.

## MY MISSISSIPPI

**Kurt Machens, farmer and sandbagging coordinator, Portage Des Sioux, Mo.**



"I was born and raised here, between the Mississippi and Missouri rivers. As a farmer, I've battled the river many times, but I've spent many years boating and fishing, too. You can love it as much as you hate it.

"We've filled and laid sandbags for years, but in 2008 we came up with a system we used again this spring on our land. We get a lot of people filling bags, and as we're filling 'em, we stack 'em on pallets and move 'em around with forklifts. Then we haul 'em to the levees.

"This year hundreds of volunteers—men, women and children—came to my family farm. We worked the first four days of June filling sandbags, 10 to 12 hours a day. The county brings in the sand from a local quarry—more than 1,500 tons this time—as part of their emergency response plan. It costs us nothing.

"The county also has a machine with a big hopper we fill with sand. One guy attaches a bag to a funnel that fills it, then lays it on a conveyor belt where another guy staples it closed, and then it's stacked on a pallet. You can fill 400 to 500 an hour, [if you're] really hustling.

"But that can't compete with the production of a lot of people standing around a sand pile filling bags by hand. In four days, we filled close to 100,000 sandbags.

"Sandbagging doesn't always work. We considered this time a success with only one breach and a dozen homes and businesses wet, but the actual town stayed dry. Sure, I lost four days of work on the farm, but I would've been working for the community anyhow. We're all in this together."



## FROM THE CHIEF OF ENGINEERS

# Nation's success might stem from STEM, Corps Chief says



*Lt. Gen. Thomas P. Bostick works with third-grade students in the STEM club at Ashurst Elementary School, Quantico, Va.*

(science, technology, engineering and math) graduates, we rank among the lowest in the world alongside Bangladesh, Cuba and Cambodia. This is not sufficient. STEM fields are growing rapidly, and we need more graduates to assist with the technical work that this nation needs.

### **We understand that you drop by schools often to just interact with students and recently led a field trip of sorts on the Mississippi River. Why?**

Interacting with young people and getting them passionate about STEM early on is vital to our success and theirs. We must invest time and broaden their experiences because we are going to need them on our team. Most will not be interested in STEM, and some of those who are may not be interested in the U.S. Army Corps of Engineers, but this is also an investment in our future—for USACE and for the nation. In addition to the activity on the Mississippi River, our experts are sharing first-hand knowledge and providing hands-on, real-life experiences. We've also partnered with the Department of Defense Education Activity (DoDEA) to advance STEM education in defense activity classrooms around the world. This partnership is a tremendous opportunity to engage and excite elementary and middle school students because, as a general rule, a student must decide to pursue a career in STEM by the 8<sup>th</sup> grade.

Spending time in nature helped prompt Lt. Gen. Thomas P. Bostick's interest in a science and technology career that led to a command post heading the U.S. Army Corps of Engineers. We talked to him about ways he and his organization are helping young people find their path.

### **How does the U.S. compare to the rest of the world in the number of graduates in science, math and engineering-related professions, and is that sufficient?**

The latest statistics show that only four out of every 100 U.S. college graduates are engineers. If you look at Russia, the number is 10. If you look at China, the number is 31. With regard to STEM

### **You've also mentioned some significant historic projects in which the Army Corps of Engineers has played a role. Can you give a few examples and also address what we might risk with a shortage of engineers, mathematicians and scientists?**

America grew up with the Army Corps of Engineers. We have been engineering solutions for our nation's toughest challenges since 1775. The history of the Corps is the history of our country. Our legacy includes iconic American projects like the Washington Monument, the U.S. Capitol Dome, the Library of Congress, the Lincoln Memorial and the Pentagon. More recently, we've worked to strengthen and improve almost all of the levees, floodwalls, structures and pump stations that form the 133-mile Greater New Orleans Hurricane and Storm Damage Risk Reduction System following Hurricane Katrina in 2005.

We are the largest public engineering firm in the world; our civilian and military professionals are in more than 130 countries around the globe. Approximately 47 percent of our civilian workforce and 98 percent of our military workforce are in STEM fields. The recruitment of highly capable, dedicated and skilled STEM professionals is a national issue—not just a Department of Defense or Army Corps of Engineers challenge. A high-quality, competent STEM workforce is critical to our organization and imperative to maintaining a strong economy and providing national security.

### **What is the Corps doing now to encourage young people in their educational futures, and what more would you like to see the organization do?**

The Corps recently co-hosted an Army Engineering and Construction summer camp sponsored by the Society of American Military Engineers (SAME). The week-long camp provides an opportunity for USACE professionals to interact with talented high school students who excel in math, science and technical courses. Our participation in this event underscores the commitment of our workforce to expose high-energy students to STEM fields.

Many of our professionals volunteer their time to participate in camps and judge competitions such as eCYBERMISSION. Leveraging our scientists and engineers to provide their expertise through these means is a great start. As leaders, we can be mentors to young people interested in pursuing STEM careers, particularly those in underrepresented groups such as women and minorities.

**DID YOU KNOW?** The average speed of recreational bicycle riders is between 11-12 miles per hour. Use this to plan your next route on a bike trail near you.

## Camp offers leadership training, career exploration

The chance to build her own model of a Mississippi River channel and see how added rock controlled erosion was a defining moment for LeClaire, Iowa, senior Kate Staebell. Her time at the Society of Military Engineers Camp (SAME) in Vicksburg, Miss., helped Kate decide on a career in hydrology, something she'd not considered before.

Besides making life-long friends, she learned much more than she expected, she said, and became passionate about helping the Mississippi River—upon whose shores her town sits—as well as other rivers and the coasts. Camp organizers seeking to turn more students on to technical careers (STEM) also were successful, apparently. "Once you heard a little more," she said "you saw these weren't boring, mathy, sciency jobs." Here are some excerpts from her camp journal:

**June 17:** Today we went to Memorial Park and were trained on how to fire and load cannons from the Civil War. That was pretty neat. ... We had our military challenge before dinner. This was our list of four tasks: Design and put up a flag in a certain area, make a shelter that didn't touch the ground and we could all fit under,



**June 18:** ... We had our Mardi Gras night. ... After we had Jambalaya, we had our straw bridge competition. That was so intense and stressful, but we all came together .... We came in first place for how our bridge looked.

**June 21:** We went to ERDC and started off the day

by looking at two vehicles that they test there. Next we had a soils lab. ... That was the place where I began to get very dirty. That was the coolest place. I thought how amazing it was they put so much detail in a model to test and how important each of these details were. We got to build our own channels with sand dimensions given to us.

**June 22:** Today was the final day of camp. We stayed up until 2:30 a.m. playing games and singing not wanting the camp to end. ... I couldn't believe it was over. We went to test our concrete's strength before going to the ceremony for graduation. Blue team's concrete was the strongest, then green's, then ours ... We were in the lead by one point against blue before the strength test but we ended up taking second by one point since they beat us ... This camp was awesome because I met 37 other wonderful people that all have similar interests and great personalities.





# Painting a river that heals



**T**ens of thousands of visitors to the New Orleans Museum of Art and other galleries across the south saw the human toll of Hurricane Katrina, as captured by southern painter Rolland Golden. Now, many others can see the perhaps unexpected images of a river that helped him heal from the tragedy's emotional toll.

Golden's vibrant, 45-painting series "River and Reverie: Paintings of the Mississippi" just completed a six-stop tour that included the Mississippi Museum of Art. The works can now be found in his Natchez, Miss., gallery and personal website.

While art is always open to interpretation, the long-time artist wants to be clear on one thing. The unexpected colors—the oranges and lavender and reds you'll find in these Mississippi paintings—really exist, depending on light and sky, in waters often mistakenly portrayed as a muddy brown.

"One evening, after spending over two years working on a very emotional exhibition on Hurricane Katrina, I went to the bluff in Natchez, at sunset and became aware that the colorful sky was being reflected in the river water," Golden said.

"The river is beautiful, powerful, frightening and majestic, all at the same time. I wanted to capture these four aspects of this great river in my paintings. Now that I was at the end of my Katrina Exhibition, I was ready to move on to something more upbeat and cheerful. Thus began my Mississippi River series."

Golden was born in New Orleans and opened his first gallery in the French Quarter; Hurricane Katrina forced a move from South Louisiana to Natchez, home to his current gallery. His body of work, according to author John Kemp, who wrote a retrospective of the artist's career, puts him in the vein of the great southern writers and artists whose work expresses a deep connection to the land, its people and the history of the environment. While usually focusing on landscape, the Mississippi River exhibit tries to capture the timelessness of the river, Golden says. While it wasn't his way of making peace with the river exactly, says wife and business partner Stella, the result was something even more powerful.

"The peacefulness he saw in the river helped him a lot psychologically," she said. "Emotionally, water cleanses, and his river series was like that. Katrina was such a high tragedy, that it affects your life day in and day out. You live with it. Painting the river really helped Rolland get out of that sadness and gloom." —K.S.

**FOR MORE:**  
[rollandgolden.com](http://rollandgolden.com) or  
[rollandgoldengallery.com](http://rollandgoldengallery.com)

**DID YOU KNOW?** Hunters and anglers support more jobs nationwide than the number of people employed by Wal-Mart. National Hunting and Fishing Day is Sept. 28.



# Saving ‘The Big One’—one tank-load at a time

**THE FED-EX DRIVERS** whose routes include the Pvt. John Allen National Fish Hatchery in Tupelo, Miss., get quickly used to the fact they’ll be carrying precious—and unusual—cargo, say 100,000 tiny fish in a box, oxygen in a bag to help with breathing and ice packed in to keep them cool.

That’s one way the hatchery transports the fish bred there to boost scarce populations for preservation, sports fishing or research. But no cargo is handled as carefully as the alligator gar—the monster of the Mississippi River—when it comes time to move them to various river pools, says Ricky Campbell, the hatchery manager. Special temperature-controlled trucks are used to haul this, the river’s largest fish species, inside 500-gallon circular tanks complete with oxygen systems.

But tricky transport issues are par for the course for the U.S. Fish and Wildlife Service, an agency that’s been moving species since at least 1907. That year, 15 native plains bison were loaded onto a railroad car, traveling from New York City to Oklahoma as the seed stock for the bison managed today at the Wichita Mountains Wildlife Refuge. The agency has moved 800-pound brown bears and 600-pound caribou and more to reintroduce species to historic habitats, keep them off the endangered list or introduce them to new areas where climate warming is creating new habitat.

BELOW: *Kayla Kimmel, Cory Gullett, and Brady Barr hold an alligator gar at the Pvt. John Allen National Fish Hatchery.*

In Tupelo, thousands of alligator gar are propagated for restoration efforts throughout the lower Mississippi Valley, all from a handful of male and female fish caught at the St. Catherine Creek National Wildlife Refuge in Sibley,

Miss., and the Passer Swamp in Yazoo City, Miss., Campbell said. By tracking gar outfitted with active transmitters and experience gained over a 12-year program, “We know where and why they’re going and where we can set our collection gear.”

All they need are four females (between 100 and 180 pounds) and eight males (between 25 and 65 pounds), collected when the water warms to a certain temperature and fish preparing to spread out into the floodplain for spawning. The caught fish are used to propagate more fish inside fish hatchery tanks, where crews can collect 80,000-90,000 eggs per fish with a 70 to 80 percent hatch rate, the fingerlings (baby fish) are then shipped to supply 10 other hatcheries and various academic institutions doing research work.

Some 8,000 alligator gars each season are held at the hatchery; and the fish, resembling a plump alligator that swims, are tagged and returned to the Mississippi, between Cairo, Ill. and the Gulf Coast, to help restore a nearly extirpated population.

The story behind their decline has many factors, but overharvesting was certainly one of them, Campbell says. Back in the 1950s and 1960s, he says, states believed alligator gar were harming game fish; as a result, several states launched predator fish eradication programs, nearly leading to the fish’s extinction. Today, conservation experts see the alligator gar as good for game fish since it eats fish that compete with them. This “apex predator” is perhaps the only fish that feeds on the invasive silver carp, he says, and offers potential for reducing their population.

Commercial fishing for gar still takes place in Louisiana and Texas, where alligator gar have a value of about \$4 a pound. Every other state puts a limit on gar haul, Campbell says, so it’s moved from trash fish to trophy fish.

“I’ve had old commercial fishermen who used to fish them tell me it’s like deep fishing in fresh water, he said. “They’ll float to the surface and bask in the sun, and you can side cast to them. They’re opportunistic feeders. Whatever’s easy, they’ll feed on them.”

While fishing options won’t likely expand any time soon, ideas for further preservation are being launched. The U.S. Fish and Wildlife Service is working with the Gulf Coast Plains and Ozarks Landscape Conservation Cooperative on a model that’ll show where there’s the most potential for improved connectivity between the Mississippi River and its floodplain to provide habitat.

“If you look at the alligator gar, one of the longest-lived species that’s in the river, they’d be a good indicator in my opinion of a good ecosystem. If you look at the food chain, this is a top link. If you take a link out of the top, the rest of the chain is pretty useless. Getting it restored is a fundamental element.” —K.S.



## Cast a line in a thriving fish habitat

Fishing legends like Tommy Biffle rumbled, as did winds gusting across the Mississippi River, during the recent Bassmaster Elite Series, held June 20-23 this year in pools 6-10 around LaCrosse, Wis.

Biffle found success, and the fact that the world’s premier competitive bass fishing series came to the Mississippi River is itself

evidence of success—in part due to the massive restoration effort known as the Upper Mississippi River Restoration Environmental Management Program, says Hilary Markin, a spokesperson for the Corps’ Rock Island District.

The partnership program between the U.S. Army Corps of Engineers, U.S. Geological Survey and many other agencies and organizations was the first to combine ecosystem restoration with scientific monitoring and research on a large river system, to date restoring some 100,000 acres of aquatic and floodplain habitat. The information collected and published about water quality, vegetation and fish is available to the public at [www.mvr.usace.army.mil/Missions/EnvironmentalProtectionandRestoration/Upper-MississippiRiverRestoration.aspx](http://www.mvr.usace.army.mil/Missions/EnvironmentalProtectionandRestoration/Upper-MississippiRiverRestoration.aspx).

While the information won’t tell even the elite bass masters how to catch a fish, it will steer them to where professional biologists have found fish in years past as they’ve sampled bass and other species on the river’s upper stretches, she said.

The Mississippi flows through 10 states, and has plenty of channels and inlets in which the 119 species in the river—among them walleye, catfish, bass and sauger—love to hide. —K.S.

## FISHING GUIDE AT A GLANCE

- Walleye, a prized species, are most prevalent on the Upper Mississippi between St. Paul and St. Louis. Experts advise sticking within a mile or two of locks and dams where the current is not as strong. FIND PLACES TO ACCESS THE RIVER AT [WWW.RECREATION.GOV](http://WWW.RECREATION.GOV).
- Catfish (including blue, flathead and channel) are synonymous with the Mississippi and are prevalent in Missouri, Mississippi, Tennessee and even Iowa. They’re best caught at night when out looking for food but are also found in deep crevices and around rocks and logs by day.
- Bass fishermen have particularly good luck, with largemouth bass on the backwaters, smallmouth in the main channel, particularly near wingdams and rocks. Walleyes and saugers are other prime main-channel species and are most often found in a faster-flowing current.
- Catching something for the record books isn’t a far-fetched idea, whatever the targeted species. A world record blue catfish—124 pounds—was caught on the Mississippi in 2005. State records include a 157-pound alligator gar, a 48-pound buffalo fish, a 57-pound sturgeon and a 52-pound paddlefish.





# Focus on Forests

The bottomland forests of the Mississippi River offer a great place for exploration and contemplation. But their value goes far beyond that as they provide spawning grounds for fish, filter water impurities, help control flooding and serve as habitat for waterfowl and migrating songbirds. This is why forests are taking center stage in restoration projects on the entire length of the river.



## Upper River: New plan lends ancient forests a helping hand

Some 7,000 tiny seedlings—wildlife-friendly cottonwoods, river birch, black walnut, swamp white oak and even a species of elm that's tolerant to Dutch Elm Disease—are taking root on an uninhabited Minnesota island sandwiched between towering Wisconsin bluffs and a shallow lake frequented by wildlife.

Foresters planted a third of the seedlings on a section clear-cut of mature silver maples; fewer trees were removed on another third and still fewer on the final planting area—all to see which level of filtered sunlight is most effective in helping the next generation of forest outcompete invasive grasses for water, nutrients and growing space. As part of the experiment, foresters applied herbicide to invasive reed canary grass in some sections but not to others, mulched some sections and left other parts of the forest floor alone.

Several partners, including the National Audubon Society, the U.S. Forest Service and Minnesota Department of Natural Resources, are joining the U.S. Army Corps of Engineers in the experiment. This is one of many ongoing efforts to help ensure the vast and ancient forest mosaic along the Upper Mississippi River has an equally promising future, in spite of growing threats.

"There's quite a bit of reed canary grass that has made its way into the forest understory," said Randy Urich, the Corps' environmental section manager for the Recreation and Natural Resources Project based in La Crescent, Minn.

"The concern is that if no management takes place, over-mature trees will continue to die and create openings in the canopy, but rather than there being new replacement seedlings and saplings, the reed canary grass will take over, growing so densely and aggressively that natural regeneration of the forest doesn't take place."

The experiment, called the Gore's Reforestation Project, will help foresters determine which planting method helps trees best survive the invasive grass onslaught, with the most successful methods applied to forests elsewhere along the river, Urich said.

The project is being completed as the Corps begins to implement various recommendations outlined in the new Upper Mississippi River Systemic Forest Stewardship plan. Unveiled last year, the multi-faceted plan provides for a major forest inventory that looks at forest strengths and potential threats as well as size, relative distribution and health of trees through the Upper Mississippi River system. As part of the inventory, geomorphic assessments, completed in the St. Louis District and well underway in St. Paul, examine plant history of the land. They use historic information, including notations made by land surveyors of the 1800s, and then factor in changes in land use and hydrology to help determine what species to plant and where to plant them today for the greatest success.

What's been learned so far, according to the Corps foresters, is that invasive grasses like Japanese hops will continue to encroach on floodplain forests. Additionally, alterations of the river system and landscape lead to a more monotypic forest—one heavily represented by a single species, the silver maple. That's a problem, in part, because certain wildlife species are partial to certain

trees; for example, while the endangered Indiana bat is partial to the abundant maples, the bald eagle prefers trees like the cottonwood (in the north) and sycamore (in the south)—the trees that tower above the rest of the floodplain forest.

A monotypic forest poses additional problems, underscoring the need for experiments like that being conducted at Gore's.

"We're essentially putting all our eggs in one basket if you have a forest pest that comes along and wipes out an entire species," says Joe Lundh, supervisory natural resource specialist for the Mississippi River Project in the Rock Island District. "There's definitely a need for forest management activities out there to address those issues." —K.S.

## Lower River: Cleaner water, expanded habitat the goal of ambitious reforestation project

Rives Neblett is eager to see bottomland forest return to the 1,700 acres he owns along the Mississippi River. The process will take decades, but his children and grandchildren will see the clear-cut land again come to life with black bears, colorful songbirds and white-tailed deer—all thanks to a project managed by two nonprofit conservation groups.

"This land should never have been cleared," said Neblett, who, with seven other families, owns the property on Concordia Island, near Rosedale, Miss. "It's highly erodible land. We're putting it back to the highest and best use of property adjoining the Mississippi River."

Neblett's Concordia Island tract, which adjoins about 16,000 acres of existing forest in two private hunting clubs and includes land in Arkansas and Mississippi, is one of the first properties to be enrolled in a new reforestation program focusing on frequently flooded and erodible land in the active floodplain of the Lower Mississippi River.

The land inside the river's main levees and bluffs is often called the "batture," and it contains some of the region's best remaining forests. However, despite the flooding risks, more than 300,000 acres of cleared land exist in the batture area, long considered a "wasteland over the levee," but particularly ripe for conservation.

The reforestation program is managed by two nonprofit conservation groups, the Mississippi River Trust and the Lower Mississippi River Conservation Committee (LMRCC). It is funded primarily by the Natural Resources Conservation Service, an arm of the U.S. Department of Agriculture, through its Wetlands Reserve Enhancement Program. It is aimed at landowners in Arkansas, Kentucky, Louisiana, Mississippi, Missouri and Tennessee. Last year, more than 7,000 acres were enrolled in the first year of the four-year program, toward a goal of 40,000 acres.

By participating, landowners agree to enroll their land in conservation easements for 30 years or permanently. In return, landowners are paid one time per-acre fees and receive assistance with reforestation. Two private foundations, the Walton Family Foundation and the U.S. Endowment for Forestry and Communities, are also supporting the effort.

AERIAL PHOTO: BRUCE REID. OTHERS: RANDY URICH.





ABOVE, FROM FAR LEFT: *Corps natural resource specialist Ray Marinan uses a spotting scope to observe bald eagle behavior during reforestation activities at the Gores Reforestation Project Site near Red Wing, Minn.; Floodwaters cover cleared batture land, near Vicksburg, Miss.*

“By combining private and government support, we can proceed with one of the most significant conservation projects that has ever occurred in the region,” said James Cummins, president of the Mississippi River Trust. “This program will provide lasting benefits to landowners along the river, and it will help our downstream neighbors by improving water quality in the Gulf of Mexico.”

Reforestation of these batture lands will lessen the amount of excess nutrients entering the river and the Gulf of Mexico; reduce flooding of farmland; reduce federal crop insurance and disaster payments; increase opportunities for outdoor recreation; and expand habitat for bears, migratory birds and other wildlife.

The NRCS expects the reforestation project to make an appreciable dent in nutrient pollution in the river and the Gulf of Mexico. “We are working throughout the region to achieve significant benefits for local wildlife as well as to help lessen Gulf of Mexico hypoxia,” said Reed Cripps, an NRCS soil scientist working on the project.

Recent studies suggest that the cessation of farming alongside the river can reduce the amount of nitrogen entering the Mississippi River by about 30 pounds per acre per year. A greater amount of nutrients would be trapped by the restored forests over time, scientists say.

Neblett’s land also adjoins another restoration site. There, engineers from the U.S. Army Corps of Engineers’ Vicksburg District worked with the U.S. Fish and Wildlife Service, the LMRCC and the private group Wildlife Mississippi to restore flow to more than three miles of a riverside channel to improve habitat for the endangered pallid sturgeon and other river fish. The LMRCC is a coalition of 12 state fish and wildlife conservation and environmental quality agencies from the six lower river states, focused on habitat restoration, long-term conservation planning and nature-based economic development.

“It’s exciting to see habitat restoration efforts extend beyond the river and onto adjacent lands,” said Angeline Rodgers, the LMRCC’s acting coordinator. “By integrating conservation efforts throughout the batture, we hope to maximize benefits to fish and wildlife while improving the water quality of the lower river.” —B.R.

## MY MISSISSIPPI

**Martha Ifland, Wench Martha for the *Gypsy Rose* Pirate Ship, 56, Ballwin, Missouri**



“Five years ago my boyfriend, Tim Woodson, randomly said, ‘I think I’m going to build a pirate ship.’ That’s how we started. The first boat, the *Gypsy Rose*, we made for personal use, building it off a Carver cabin cruiser. He was in a hurry to get it done, because everybody on the river thought he was crazy.

“But now we’re on our fifth boat, the *Gypsy Rose V*. We just sold *Gypsy Rose IV* to The History Channel for \$80,000.

“Capt. Tim envisions the boats in his head. If there are any plans, they’re written on a napkin and changing all the time. Two retired guys help us build—Bar-

nacle Bill and Jimmy the Squid—plus a few others.

“I’m Wench Martha, but only on weekends. It’s an adventure. I wear a bandana, wench-ish jewelry, wench-ish sandals, a little skirt and a midriff top with a swimsuit underneath. I’m the crew, running around, throwing lines, and I sweat like a horse! So I need a dip now and then.

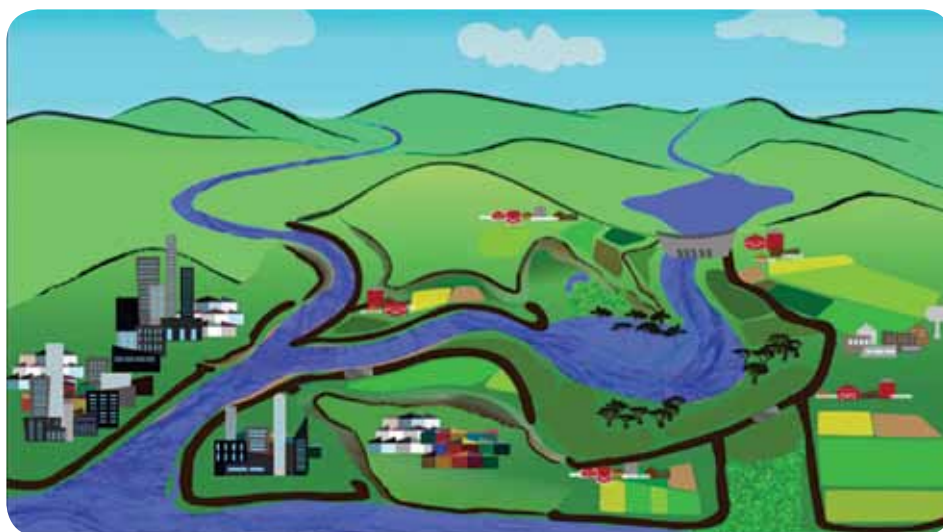
“We’re the only pirate boat on the Mississippi. At first it was mostly for kids’ parties, but now it’s family reunions and bachelorette parties, and we’ve even done a couple weddings. One woman had her 90th birthday on the boat. We encourage people to dress as pirates, and it’s amazing how many do.

“We figure we’re just helping everybody have fun—then they get to go home and sleep in their own beds.” FOR MORE: [GYPSYROSEPIRATESHIP.COM](http://GYPSYROSEPIRATESHIP.COM)

## Reducing flood risks—with nature

**AMERICA’S WATERSHED INITIATIVE**, which is a coalition of diverse stakeholders working to develop shared solutions for common challenges throughout the Mississippi River watershed, is promoting a new, animated video about floodplains. The six-minute video is designed to help audiences understand the benefits that healthy, functioning floodplains provide and how they interact with rivers as well as the roles floodplains can play in reducing flood risk for communities. Produced by The Nature Conservancy, the video and complementing feature stories and sidebars can be found online at [nature.org/floodplains](http://nature.org/floodplains).

“This video is a powerful tool that helps us explain what can be a complicated concept—working with nature rather than against it to reduce the risk of flooding for our communities,” said Jordy Jordahl, director of America’s Watershed Initiative. “Implementing approaches like those presented in the video requires working with



stakeholders with diverse interests along our rivers—stakeholders ranging from landowners, levee districts and communities to industry, government, academia and non-profit organizations. That’s a role America’s Watershed can play – one of convening such groups to find shared solutions to problems, like flooding, that are common throughout the Mississippi River watershed.”

Businesses, organizations, agencies or individuals interested in using the video or linking to it online are encouraged to do so, and can send inquiries or requests for the original video file to Jay Harrod via e-mail at [jharrod@tnc.org](mailto:jharrod@tnc.org).



What do engineers do?

Find the words and phrases describing engineers' tasks and expertise.

- Protect Environment  
Problem Solving  
Erosion Control  
Flood Control  
Dikes  
Dredge
- Safety  
Automobiles  
Space  
Levees  
Medical  
Computers
- Explosives  
Harbors  
Channels  
Models  
Bridges  
Buildings

P Y U E R O S I O N C O N T R O L W D G  
R R C X E T K G H D H F Y T J U Y G U F  
O H O B V A S D R G A F R B E O U P S L  
B S Y T S P H R W Z N X V U E O H B S O  
L J E M E D I C A L N C R I S J F R Y O  
E O H J W C M L P U E S G L N V U I G D  
M B K L D K T D G E L G N D G O N D G C  
S A F E T Y H E G W S L K I Z J E G M O  
O T Y V S D L M N Q W I Y N S H T E J N  
L R F E C R E W D V P O K G N C L S Y T  
V H G E M K I O E A I U W S R O V X K R  
I M V S B L H A R B O R S Q Y M X W R O  
N Z X C V B N M J H G Y O R D P K Y U L  
G V A S L D G A L S S D L N O U J A S G  
P I U E X P L O S I V E S Y M T W E D M  
D R E D G E V O A D G N D W O E Z X C O  
I G H J U Y G F R E D S W X Z R N W E D  
K X D C F R G Y H U J M K O L S V T P E  
E X G G A U T O M O B I L E S T G H V L  
S P A C E N G D E R T Y U J K L K J R S

Engineering Match-up

Draw a line matching each engineer with the picture that best illustrates his or her work.



Environmental

Mechanical

Agricultural

Biomedical

Software

Electrical

Civil

Chemical

Aerospace





## RIVER GETAWAYS

### *Where the Mississippi provides the lullaby*

The Mississippi River holds a powerful allure for travelers. Whether your dream getaway is a tent in the woods or an elegant mansion that will pamper you with amenities, here are eight venues that'll help you forge a special river connection.

#### **Frontenac State Park near Red Wing, Minn.**

Set atop a high bluff overlooking the Mississippi, 2,300-acre Frontenac State Park is one of the best places in the country to watch migrating birds, which use the river as a flyway in the spring and fall. The Sand Point trail follows a boardwalk to Lake Pepin, a naturally formed widening of the river, or you can walk along the edge of the bluff to In-Yan-Teopa, a limestone arch believed to be a sacred spot for early Native Americans. MNDNR.GOV/FRONTENAC

#### **Pike's Peak State Park near McGregor, Iowa**

In 1805, explorer Zebulon Pike gave his name to a high spot with a glorious view. This 500-foot bluff overlooks the confluence of the Mississippi and Wisconsin rivers in northeast Iowa. (Pike's Peak in Colorado came second.) The 960-acre park has 11 miles of hiking trails that meander through wooded hills and valleys. Nearby is Effigy Mounds National Monument, which protects more than 100 burial mounds, many in the shape of bears and birds. IOWADNR.GOV/DESTINATIONS/STATEPARKS/RECREAS/IOWASSTATEPARKS

#### **Mississippi Palisades State Park near Savanna, Ill.**

Located at the confluence of the Mississippi and Apple rivers and designated a National Natural Landmark, this 2,500-acre park is known for its dramatic, 200-foot limestone bluffs. While technical climbers head straight up the cliffs, the less-adventurous can walk along the park's ridges overlooking the river or hike into its wooded, steep ravines. The park's 241 campsites offer ample room for visitors. DNR.STATE.IL.US/LANDS/LANDMGT/PARKS/R1/PALISADE.HTM

#### **Meeman-Shelby Forest State Park near Memphis, Tenn.**

With two lakes, 21 miles of hiking trails, and more than 13,000 acres of hardwood forest bordering the Mississippi, this park offers outdoor adventures just 13 miles from Memphis. Visit the Meeman Museum and Nature Center to learn more about the ecology and history of the area, or bike a four-mile paved trail through the forest. During the summer, sign up for a guided canoe trip through the park's remote backwaters. TN.GOV/ENVIRONMENT/PARKS/MEEMANSHELBY

#### **The Briars in Natchez, Miss.**

Located on a high bluff overlooking the Mississippi, The Briars was built between 1814 and 1818 in classic Southern plantation style. Jefferson Davis married Varina Howell here in 1845, and the mansion is still a popular place for weddings, particularly when its garden is ablaze with more than a thousand blooming azaleas. Designated a National Historic Landmark, the inn's 12 rooms and suites are furnished in period style. THEBRIARSB.COM

#### **Pere Marquette Lodge near Grafton, Ill.**

This 8,000-acre park is named for the French Jesuit priest who explored the region in 1673 with Louis Joliet. Its lodge—built in the 1930s by the Civilian Conservation Corps—includes a great room with massive stone fireplace and soaring wooden beams. Guests can stay in the lodge itself, rent a cozy cottage, or rough it in the park's campground. During the day, hike the park's trails to enjoy panoramic views of the confluence of the Mississippi and Illinois rivers, then enjoy dinner overlooking the Mississippi in the lodge's restaurant. DNR.STATE.IL.US/LANDS/LANDMGT/PARKS/R4/PEREMARQ.HTM

## OUR MISSISSIPPI TRAVEL



*Your view from near Pere Marquette Lodge.*

#### **The Southern Hotel in Ste. Genevieve, Mo.**

One of the oldest settlements west of the Mississippi, the charming Missouri town of Ste. Genevieve is rich in French Colonial history. The Southern Hotel, a Federal style structure built here in the 1790s on the bank of the Mississippi, has welcomed many generations of river travelers. Its three floors include nine guest rooms (most with a hand-painted, claw-footed tub), while outside is a garden and art studio with items for sale from 35 artisans. SOUTHERNHOTELBB.COM

#### **Nottoway Plantation & Resort near Baton Rouge, La.**

Built in 1859, Nottoway is one of the grandest homes along the entire Mississippi River. This white-wedding-cake of a building is surrounded by live oaks and magnolias and was once the centerpiece of the South's largest antebellum plantation. Even if you can't spend the night, take a historic tour of the mansion and then dine in its restaurant, which specializes in Creole cuisine and Louisiana favorites. NOTTOWAY.COM —L.E.

Secure your spot at one of 93,000 campsites at [recreation.gov](https://recreation.gov).

## Peek under the sea—without getting wet

**It took a flood to develop one of the more unusual tourist attractions within a Corps recreation area.**



ABOVE: *An example of the fossils, remnants of ancient sea creatures, found in the Corps' Devonian Fossil Gorge.*

**IN 1993**, water poured over the spillway at the Corps' Coralville (Iowa) Reservoir. The current was so powerful it picked up and moved huge blocks of stone and dug out 15 feet of soil some four football fields in length. What the flood uncovered was an ancient ocean floor.

The resulting "Devonian Fossil Gorge" is now especially popular among families who like to hunt for the thousands of tiny fossilized sea creatures embedded within, said Terry Escher, the park's natural resource specialist.

A welcome plaza provides orientation for visitors on a self-guided tour. Interpretive displays are embedded within limestone pillars, explaining how the water came over and facts about the 275-million year old or so rock that existed, Escher notes, some 200 million years before dinosaurs.

At that time, Iowa was a tropical ocean, and some of the site is a portion of a massive coral reef that stretches east to the Mississippi River and north another couple hundred miles, she said. The town and site, Coralville, were named after the reef.

"The fossils you find are all the ocean creatures that lived there at the time," she said, "...and the reef was a great habitat for all the other animals in the ocean, too."

Many of the fossils are related to modern-day starfish. Those who look carefully will find fossils that include horn corals, solitary corals, crinoids and brachiopods. Visitors also can explore "solution features" or miniature caves dissolved out of the limestone by the groundwater. —K.S.



For more: [mvr.usace.army.mil/coralville/devonian\\_fossil\\_gorge.htm](https://mvr.usace.army.mil/coralville/devonian_fossil_gorge.htm)



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PM-A (Dolan), Clock Tower Building  
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Rock Island, IL 61204-2004

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## Navigation improvements critical, group says

The Upper Mississippi River Basin Association issued a position statement that stresses the need for infrastructure improvement on the river and ways to address the complex challenges facing such an investment. Funding for the Upper Mississippi's commercial navigation system has been inadequate since the mid-1980s, according to the statement by the group, which represents Illinois, Iowa, Minnesota, Missouri and Wisconsin. The statement recommends the nation immediately improve the system by completing the most critical operation and maintenance backlogs and implementing identified small-scale efficiency measures; advance designs for new locks and dams; elevate the Upper Mississippi's critical capital needs on the national stage; resolve shortfalls in the Inland Waterways Trust Fund, which generates revenue through a marine fuel tax; and continue to advance commercial navigation priorities in a multi-purpose, collaborative approach.

"The Upper Mississippi River provides tremendous benefits to the region and nation, particularly in the way it connects the Midwest states to the world economy," the organization wrote. "Thus the states have a vital interest in ensuring the Upper Mississippi continues to function as an important commercial transportation corridor, in ways that also support the river's other multiple purposes and human uses. READ THE POSITION STATEMENT: [UMRBA.ORG/COMMERCIALNAV/UMRBA-COMMERCIAL-NAV-POSITION6-25-13.PDF](http://UMRBA.ORG/COMMERCIALNAV/UMRBA-COMMERCIAL-NAV-POSITION6-25-13.PDF).

## Mississippi River Commission heading on Upper River tour

The public is invited aboard Motor Vessel *Mississippi* at stops along its upcoming low-water tour Aug. 12-23. At each stop, meetings will include a summary report on regional and national issues, including ongoing flooding, affecting Corps of Engineers projects on the Mississippi River and its tributaries; an overview of current project issues in the region; and presentations by local organizations and members of the public. Attend a meeting near you:

La Crosse, Wis.	Riverside Park Landing	Aug. 12, 1 p.m.
Dubuque, Iowa	city front	Aug. 13, 1 p.m.
Alton, Ill.	city front	Aug. 16, 9 a.m.
New Madrid, Mo.	city front	Aug. 19, 9 a.m.
Memphis, Tenn.	Beale Street Landing	Aug. 20, 9 a.m.
Vicksburg, Miss.	city front	Aug. 21, 1 p.m.
Morgan City, La.	port commission dock	Aug. 23, 9 a.m.

**DID YOU KNOW?** Outlaw Jesse James' last robbery was in 1881, when he stole \$5,240.18 in payroll headed for U.S. Army Corps of Engineers workers building the Muscle Shoals Canal Project on the Tennessee River.  
SOURCE: USA TODAY

Scan here with your smartphone to go to the *Our Mississippi* website. Here, you can subscribe to our e-edition, read past editions and find river-related education materials.



Send story ideas to [editor@ourmississippi.org](mailto:editor@ourmississippi.org)

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- Kimberly Rea, West Alton, 636-899-0050
- Romanda Walker, St. Louis, 314-331-8090
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This newsletter is a quarterly update of ongoing efforts in the Mississippi River Watershed and does not necessarily reflect the views of the U.S. Army.